

APPARATUS AND METHOD FOR IN-SITU ADJUSTMENT OF LIGHT
TRANSMISSION IN A PHOTOLITHOGRAPHY PROCESS

ABSTRACT OF THE DISCLOSURE

An adjustable, in-situ photolithography process is
5 taught, where incident exposure light is passed through two
polarizers; the first polarizer capable of altering its
polarization direction, during exposure, relative to the
polarization direction of the second polarizer, in order to
enhance the contrast of a patterned image projected on a
10 semiconductor wafer. The second polarizer in the optical
train is a photo mask transparent substrate impregnated with
colloidal crystals that are aligned in a fixed,
predetermined direction by magnetic field. The photo mask
may also contain a silicon compound for phase shifting the
15 incident exposure light to further enhance the image
contrast.

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